

WHAT IS CLAIMED IS:

1. A method of detecting the presence or level of an analyte in a sample, the method comprising steps of:

- 5 (a) providing a sample containing an analyte;
- (b) mixing said sample with a second ligand, which second ligand binds to said analyte when incubated therewith, so that analyte/second ligand complexes are formed;
- (c) providing a solid phase having bound thereto a first ligand, which first ligand is characterized by an ability to bind to said second ligand in such a way that, were said first ligand and analyte exposed simultaneously to unbound second ligand, said first ligand would compete
10 with said analyte for binding to said second ligand;
- (d) contacting the mixture produced in step (a) with said solid phase so that unbound second ligand in said mixture binds to said first ligand on said solid phase, said contacting time for a column volume of mixture being selected from the group consisting of a time limited to less
15 than about 1 second, 0.48 seconds, 0.12 seconds, and 0.06 seconds;
- (e) binding a detectable tag to said second ligand either prior to or after step (a), step (b), step (c), or step (d) so that a portion of said tag is retained on said solid phase upon formation of said first ligand/second ligand complex; and
- (f) detecting said portion of said tag and comparing it to an amount of tag retained on
20 the solid phase in the presence of a known amount of analyte to determine the presence or level of said analyte in said sample.

2. The method of claim 1 wherein said first ligand and said analyte are identical.

25 3. The method of claim 1 wherein said first ligand and said analyte are different.

4. The method of claim 3 wherein said first ligand comprises an analog of said analyte.

5. The method of claim 1 wherein the step of mixing comprises combining said sample with said second ligand in such a way that said analyte and said second ligand are present at approximately similar concentrations in said mixture.

6. The method of claim 1 wherein the step of contacting comprises contacting said mixture with a solid phase having bound thereto an amount of said first ligand in substantial excess to the amount of unbound second ligand in said mixture.

7. The method of claim 1 wherein:

the step of mixing comprises incubating said sample and second ligand together so that analyte/second ligand complexes form and the amount of unbound second ligand in said mixture is thereby reduced; and

the step of contacting comprises forming a number of first ligand/second ligand complexes on the solid phase, the number of first ligand/second ligand complexes being smaller than it would have been had said analyte/second ligand complexes not been formed in said mixture prior to said contacting step.

8. A method of detecting the presence or level of an analyte in a sample, the method comprising steps of:

(a) contacting said sample with:

(i) a solid phase having bound thereto a first ligand that binds said analyte when incubated therewith; and

(ii) a second ligand that binds said analyte when incubated therewith, the result of the two contacting steps being that a first ligand/analyte/second ligand complex is formed on said solid phase,

(b) limiting the contacting time for a column volume of mixture to less than about 1 second between said second ligand and said solid phase;

(c) binding a detectable tag to said second ligand either prior to or after formation of said first ligand/analyte/second ligand complex so that a portion of said tag is retained on said solid phase upon formation of said first ligand/analyte/second ligand complex;

5 (d) detecting said retained tag to determine the presence or level of said analyte in said sample.

9. A method of detecting the presence or level of an analyte in a sample, the method comprising steps of:

(a) contacting said sample with:

10 (i) a solid phase having bound thereto a first ligand that binds said analyte when incubated therewith; and

(ii) a second ligand that binds said analyte when incubated therewith,
the result of the two contacting steps being that a first ligand/analyte/second ligand complex is formed on said solid phase,

15 (b) limiting the contacting time for a column volume of mixture to less than about 0.48 seconds between said second ligand and said solid phase;

(c) binding a detectable tag to said second ligand either prior to or after formation of said first ligand/analyte/second ligand complex so that a portion of said tag is retained on said solid phase upon formation of said first ligand/analyte/second ligand complex;

20 (d) detecting said retained tag to determine the presence or level of said analyte in said sample.